

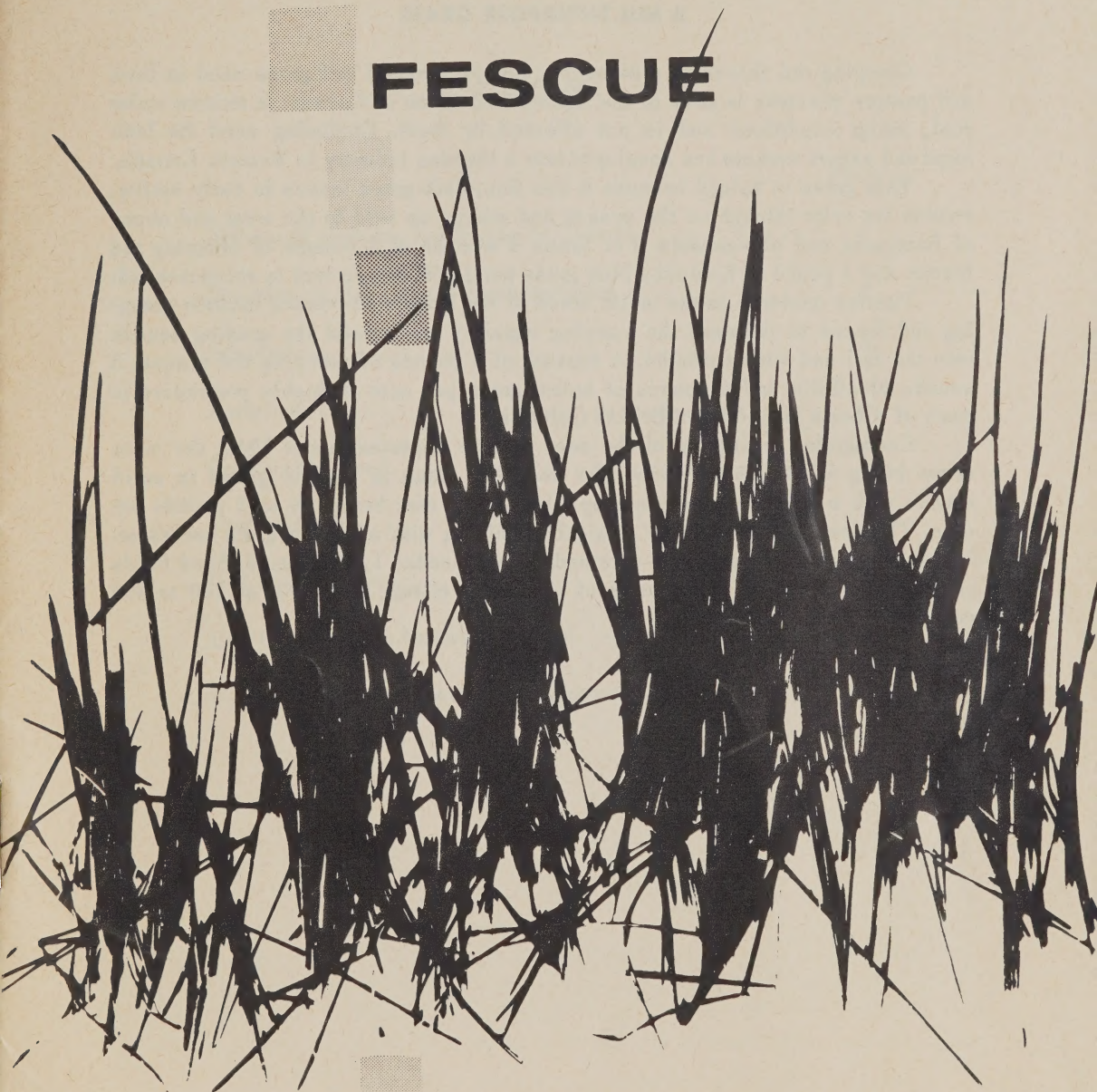
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CREEPING RED FESCUE



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A MULTIPURPOSE GRASS

Creeping red fescue is a perennial, creeping-rooted turf grass used in lawn and pasture mixtures in most of the agricultural areas of Canada. It thrives under cool, moist conditions and is not affected by frost. Producing seed for both local and export markets has developed into a thriving industry in Western Canada.

This grass is valued because it has fine, dark-green leaves in early spring, retains its color throughout the season and stands up well to the wear and abuse of farmyards and playgrounds. For lawns a mixture of 3 pounds of creeping red fescue and 1 pound of Kentucky blue grass per 1,000 square feet is recommended.

Pasture mixtures in the moist areas of the Prairie Provinces include creeping red fescue to increase the carrying capacity and extend the grazing season into the fall and winter months. A mixture of 3 pounds of creeping red fescue, 3 pounds of alfalfa and 6 pounds of brome grass per acre is highly productive in much of Alberta and northern British Columbia.

Commercial production of the seed became important about 1940, the main areas being in northern Alberta. For seed the grass is usually grown in solid stands with a cereal companion crop, the sowing rate being $1\frac{1}{2}$ to 2 pounds per acre. The seed is harvested by straight combining with a regular grain harvester. Yields average 250 pounds per acre and have exceeded 1,000 pounds. Seed fields respond well to a fall application of ammonium nitrate (33.5-0-0) at 100 to 300 pounds per acre.

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CONTENTS

	PAGE
History of creeping red fescue in Canada	4
Description and general characteristics	4
Adaptation.	4
Varieties	5
Growing the seed	6
Use as pasture	10
Use as a hay crop	12
Use in reclaiming burned-over land	14
Uses in lawns and miscellaneous areas	15

CREEPING RED FESCUE

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HISTORY OF CREEPING RED FESCUE IN CANADA

Creeping red fescue became an important grass species in Canada during the early part of World War II. An urgent need arose for a turf-forming grass to seed on airfield strips and bare areas around military bases throughout North America. Creeping red fescue was used and won wide favor as a turf grass. It is now used widely for playgrounds, city parks, cemeteries, golf courses and home lawns. Its value as a pasture grass in areas of sufficient moisture has also been well established.

These uses have greatly increased the demand for seed. In 1948 the Province of Alberta and the Peace River area of British Columbia produced Canada's entire crop of over 1.5 million pounds of seed. Production increased by 1960 to a record crop of over 16,600,000 pounds, for which growers received over a million dollars. The growing area totaled about 55,000 acres, of which over three quarters was in the Peace River region of Alberta and British Columbia. The Olds-Innisfail region of central Alberta has developed into an important secondary center of production.

DESCRIPTION AND GENERAL CHARACTERISTICS

The fescues make up a large genus; about 100 species grow in temperate and cool zones. Creeping red fescue⁴ is a perennial, fine-leaved species native to both Europe and America. It is a hardy, turf-forming grass with an extensive, fibrous root system. Because of its creeping habit it does not have the sparse ground cover of the bunch grasses, but it is not so aggressive as strongly creeping grasses like brome grass.

The dense turf can withstand heavy trampling and tends to bunchiness if not close-clipped. The leaves are dark green and under favorable conditions retain this color into the winter. The seed stems do not form until early June of the second year and are 18 to 20 inches long. The seed is borne on panicles and is straw-colored, tinged with red and usually smooth. It is similar in size to that of crested wheat grass. It weighs from 19 to 24 pounds per bushel and germinates from 85 to 96 per cent when fresh and of good quality.

ADAPTATION

Creeping red fescue grows well on a wide range of soil types throughout the Black, Transition and Gray Wooded soil zones of the western provinces, but does best in those areas that receive ample moisture. It thrives in good soil, but like other fescues also does well in soils that are rather poor. It grows better on poor

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⁴ *Festuca rubra*.

soils than either Kentucky blue grass or timothy and needs less moisture than timothy. It is less drought-resistant than crested wheat grass and is not suitable in the drier Brown and Dark Brown soils except under irrigation.

Its heavy turf and vigorous root system make this grass valuable for pasture and soil-building. It starts to grow early in the spring, slows up in midsummer and grows vigorously from late summer until freeze-up. In contrast to brome grass, it is practically unaffected by frost and provides succulent winter pasture without injury to the stand.

VARIETIES

The subspecies grown in Western Canada is *Festuca rubra* var. *genuina* L. It was introduced from Czechoslovakia in 1931 and was first grown at the Olds School of Agriculture, where Olds, the first named variety, was selected. Since then several new varieties have been developed but their general regions of adaptation have not been fully determined. One of these, Duraturf (Figure 1), was developed at the Central Experimental Farm, Ottawa, and closely resembles Olds under Western Canada conditions. Another is Pennlawn, an American variety selected for its special turf-forming qualities and disease resistance. Pennlawn is not recommended for Western Canada because of its limited winter-hardiness. All three varieties are licensed and are eligible for registration in Canada.



Figure 1.— An increase block of creeping red fescue, foundation Duraturf, seeded in rows 3 feet apart.

GROWING THE SEED

Seed is produced abundantly where there is ample moisture and fertility. However, as stands age the reserves of soil moisture and mineral nutrients become depleted and production declines.

Establishing the Stand

You can obtain satisfactory stands from broadcast or solid seedlings at 1½ to 2 pounds per acre, or in rows 12 to 24 inches apart at 1 pound per acre (Table 1). Row seedings are not always favored as they promote erosion on rolling land and make harvesting difficult.

Table 1.—Seed Yields in Pounds per Acre from Creeping Red Fescue Seeded Alone in June, 1949, at Different Row Spacings, Beaverlodge

Inches between rows	1950	1951	1952 ¹	3-year average
6	77	220	27	108
12	105	450	10	188
18	72	467	15	185
24	73	397	25	165
Average	82	384	19	

¹Depletion of soil moisture and nutrients results in low yields in the third and later years.

As a rule, seed before June 15. The grass needs one full season to become fully established and ready to produce a seed crop the following year. When seeded after the end of June the subsequent seed crop yields much less (Figure 2 and Table 2).

Cereal companion crops are used occasionally, but retard the development of the fescue seedlings and have the same effect on the following crop as late-summer seeding. If you wish to have a cereal companion crop, use flax at regular rates, wheat or barley at two thirds the regular rates and leafy varieties of oats at half the regular rates.

A firm seedbed helps to keep the seeding depth to the desired ¾ to 1¼ inches and promotes rapid germination. However, on the heavy-textured Gray Wooded soils, where soil crusting may be a problem, avoid packing for pulverizing may result and aggravate crusting.

Weed Control

You can control most of the troublesome broadleaved weeds infesting new seed stands with 2,4-D once the fescue is fully emerged. Broadleaved weeds

that remain green after the fescue matures, such as lamb's-quarters, stinkweed and sweet clover, are troublesome at harvest. About one week before the fescue heads, spray with 2,4-D at regular rates to remove these weeds. Table 3 shows that the seed yields are greatly reduced when 2,4-D is applied at the heading or flowering stage.

Table 2.— Seed Yields in Pounds per Acre of Creeping Red Fescue Seeded in 1953 on Different Dates, Beaverlodge

Seeding date	1954	1955	Average
June 4	586	211	398
10	582	344	463
18	495	366	430
24	644	398	521
Average	577	324	459
July 8	143	277	210
16	312	206	259
23	39	410	224
Average	165	331	248

Note: 1956 yields were negligible because of drought and depletion of soil nutrients.

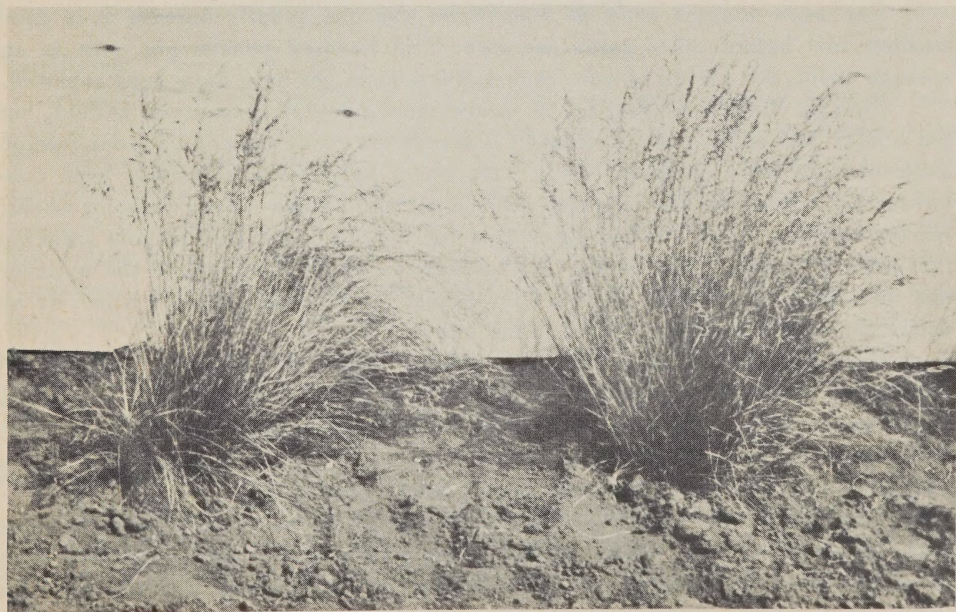


Figure 2.— Typical plants of creeping red fescue showing effect of seeding date on seed production. Plant on left seeded in mid-July; on right, in early June. Photographed on July 27 the next year.

Table 3.— Effect of 2,4-D Ester at 10 Ounces Per Acre On Seed Production of Creeping Red Fescue When Applied At Various Stages of Plant Development, Beaverlodge, 1958

Date of Treatment	Stage of plant development	Average height of heads Inches	Dockage %	Weight per 1000 seeds Grams	Pounds per acre harvested July 24
Not Treated			12	1.40	894
June 2	2% heading	12	17	1.48	610
6	100% heading	14	23	1.37	630
11	5% flowering	16	24	1.34	626
13	50% flowering	19	24	1.42	524
19	90% flowering	24	38	1.27	396
23	50% flowering	24	41	1.18	476
25	20% soft dough	25	40	1.41	586
July 2	25% hard dough	26	19	1.24	946
4	50% hard dough	26	17	1.42	904

Seed Harvest

The seed matures early in August, so you can usually harvest it in good weather and before other crops are ripe. Two hundred pounds per acre is an average yield, but yields of more than 1,000 pounds per acre have been reported.

Straight combining (Figure 3) is the most popular harvesting method, but the binder and swather are often used if stands are contaminated by green foreign material. The seed threshes easily with either spike-tooth or rub-bar type concaves. As a rule, run the cylinder and the cleaning parts slower than for wheat; run the cylinder at the slowest speed that will thresh completely without breaking the straw or cracking the seeds. Always set the clearance between the cylinder and the concaves as wide as possible. Adjust the air and tailboard carefully as seeds can easily be blown over with the straw.

Cure the seed thoroughly before storing it in bulk, to avoid heating and subsequent reduction in germination. Seed that is sacked loosely cures well when stored in the open. If there is too much green material, spread the seed in 6- to 8-inch layers on a smooth floor and mix it if necessary until thoroughly dry. Commercial seed driers have been used under extreme conditions.

The crop is usually marketed on a dockage basis as received from the combine. However, you can easily clean it with most cleaning machinery. The size of sieves used will depend on the impurities to be removed. For the top of a

two-screen fanning mill we suggest a perforated zinc sieve 1/16 inch x 1/4 inch or 1/14 inch x 3/8 inch, or a number 9 wheat screen. You may use larger sizes for more rapid cleaning. For a bottom sieve, a fine woven wire 6 x 24 or 4 x 24 to the inch will remove small seeds, dust and particles of dirt.



Figure 3.— Straight combining creeping red fescue with a combine equipped with a bagging attachment.

Fertilizing

Creeping red fescue, like most grasses, needs much nitrogen for seed production (Figure 4). When the nitrogen in the soil is low, seed production falls off. Nitrogenous fertilizers lengthen the productive period of a stand and increase the seed yield. The recommended treatment for seed fields in the Peace River region is 100 pounds of ammonium nitrate (33-0-0) per acre applied in the late fall just before freeze-up. In central Alberta additional response has been shown to phosphorus, and 200 pounds of ammonium phosphate-sulphate (16-20-0) per acre has proven best for seed production. Fertilizer applied in the fall ensures readily available nitrogen in the early spring when the seed heads are being formed. In areas where the nitrogen reserve is sufficient for the first seed crop, you need use fertilizer only for the second and later crops.

Rejuvenation of Old Stands

Rejuvenation of old stands by cultural means involves concentrated tillage. The accepted procedure is to break the sod with a moldboard or disk plow in the fall, work down to a seedbed the following spring, seed grain at a light rate and

apply fertilizer. In the Peace River region, flax, fertilized with ammonium nitrate (33-0-0) at 50 to 100 pounds per acre, is favored for this as it competes least with the volunteering fescue. The fescue becomes re-established from shattered seed and living roots and may produce two more crops. Some producers prefer rejuvenation without the grain, permitting unrestricted development of the fescue. Fertilizing as outlined in the previous paragraph is recommended for rejuvenated stands.



Figure 4.—Seed field of creeping red fescue showing effect of 100 pounds of ammonium nitrate fertilizer on the left. No fertilizer on the right.

Grazing the Seed Stand

Creeping red fescue produces an abundance of leafy growth which remains green and nutritious after winter has set in. Stands have been used to good advantage for fall and winter pasture (Figure 5) without apparent harm to succeeding seed crops. Spring grazing is feasible but must be carefully controlled to avoid grazing off the developing heads.

USE AS PASTURE

This grass is a valuable pasture species. It provides early spring grazing, and unless severely overgrazed during the summer produces succulent fall pasture. Its leaves retain their nutritive value and dark-green color even after freeze-up and provide grazing until the snow is deep.



Figure 5.— Cattle grazing the aftermath on a seed stand of creeping red fescue in January.

Creeping red fescue serves well as the bottom grass in pasture mixtures (Table 4) under various conditions. As Tables 5 and 6 show, it is similar to brome grass in yield of herbage. Like most other grasses, for pasture it should be grown in a mixture with one or more legumes. This improves the quality of herbage and increases forage yields considerably (Table 6), particularly in the older stands.

Tables 6 and 7 show the results obtained from fertilizing grazed pastures at the Beaverlodge and the Lacombe experimental farms. It is apparent that the fertilizer requirements of pastures vary considerably, depending upon the grasses and legumes used in the mixture and the soil on which they are grown. In the experiment at Beaverlodge (Table 6) creeping red fescue alone or with alfalfa responded markedly to applications of nitrogen whereas brome grass plus alfalfa responded only to the application of phosphorus. At Lacombe (Table 7), all three pastures tested responded more to the ammonium-phosphate-sulphate than to the ammonium-nitrate fertilizer. Fescue, however, was better able to utilize the higher rates than either brome grass or the brome grass and alfalfa mixture. Although more data are needed to establish rates and kinds of fertilizer, current pasture recommendations are:

For the Peace River Region

1. Ammonium nitrate (33-0-0) at 150-200 pounds per acre in early spring applications for pastures of creeping red fescue seeded alone or with alfalfa. To avoid too lush an early growth, you may make part of the application in midsummer, about July 1.
2. Ammonium nitrate-phosphate (27-14-0) at 150-200 pounds per acre, in an early spring application for the mixture of creeping red fescue, brome grass and alfalfa.

Table 4.— Recommended Rates of Seeding for Creeping Red Fescue in Pasture Mixtures for Various Areas¹

Mixture	Rate of ² seeding Pounds per acre	Areas, and comments
1. Creeping red fescue	3	All but drier parts of Alberta
Brome grass	6	This mixture also valuable for hay
Alfalfa	3	if only limited pasture required
2. Creeping red fescue	8	Foothills of southern Alberta
Alfalfa	2	
3. Creeping red fescue	4	Irrigated areas of southern Alberta
Brome grass	7	For long-term pasture
Orchard grass	7	
White Dutch clover	2	
4. Creeping red fescue	4	Irrigated areas of Saskatchewan
Brome grass	8	
Alfalfa	1	
White Dutch clover	½	
5. Creeping red fescue	2	Low areas with plentiful moisture
Timothy	3	and restricted spring flooding
White Dutch clover	½	
Alsike clover	1	
Altaswede red clover	1	

¹ Prepared from "Proceedings Western Forage Crops Conference, 1957", "Alberta Farm Guide" and "Guide to Farm Practice in Saskatchewan".

² For solid seedings.

For Other Areas Where Creeping Red Fescue Is Adapted

1. Ammonium phosphate-sulphate (16-20-0) at 300-400 pounds per acre, in early spring applications for grass or grass-legume pastures.

USE AS A HAY CROP

Creeping red fescue is not a good hay crop as it is too short and is hard to cut. It is sometimes found in hay mixtures intended originally for pasture, or as a dual-purpose mixture to be used for both hay and pasture (Table 4). In outlying areas where exploration and survey parties use horses, a limited market exists for the aftermath of creeping red fescue seed stands.

Table 5.— Average Amounts of Forage Produced Annually on Pastures Seeded with Various Grasses, Lacombe, 1952-55

Species or mixture	Forage Pounds of dry matter per acre	Beef Pounds per acre ¹
Creeping red fescue	2348	213
Brome	2290	208
Timothy	1948	177
Alfalfa + creeping red fescue	2269	206
Alfalfa + brome	2572	234
Alfalfa + timothy	2267	206
Alfalfa, brome + creeping red fescue	2641	240
Alfalfa, timothy + creeping red fescue	2351	214

¹Calculated on basis of 11 pounds of dry matter forage required to maintain a steer and produce a pound of beef.

Table 6.— Production of Three Pastures, Each with Three Different Fertilizer Treatments, When Grazed by Sheep, Beaverlodge, 1953-56

Fertilizer	Rate Pounds per acre	Forage Pounds of dry matter per acre	Lamb produced Pounds per acre	Pasture- days per acre for an animal unit ¹	Total digestible nutrients Pounds per acre
<i>Creeping red fescue</i>					
Unfertilized	0	1062	86	34	586
33-0-0	100	2634	151	61	1070
11-48-0	300	2821	166	67	1142
<i>Fescue + alfalfa</i>					
Unfertilized	0	2289	161	57	1104
33-0-0	100	3688	206	81	1467
11-48-0	300	4002	220	90	1625
<i>Brome grass + alfalfa</i>					
Unfertilized	0	2558	165	52	1028
33-0-0	100	2765	170	57	1114
11-48-0	300	4192	273	81	1614

¹A pasture-day for an animal unit is one day's grazing for a 1,000-pound steer.

Table 7.— Production of Three Pastures under Various Fertility Treatments When Grazed by Steers, Lacombe, 1956–60

Pasture	Fertilizer		Dry	Beef	Carrying	Total
	Kind	Pounds per acre	matter Pounds per acre	produced Pounds per acre	capacity Animal- days per acre	digestible nutrients Pounds per acre
1956-58						
Brome + alfalfa	Nil	0	1351	208	89	886
	A.N. 33-0-0	100	1647	243	104	1040
	A.P. 16-20-0	200	1716	265	109	1122
Brome	Nil	0	1110	179	86	784
	A.N. 33-0-0	100	1535	206	100	926
	A.P. 16-20-0	200	1768	253	112	1095
Creeping red fescue	Nil	0	711	173	87	789
	A.N. 33-0-0	100	1094	213	111	982
	A.P. 16-20-0	200	1269	239	119	1093
1959-60 ¹						
Brome + alfalfa	Nil	0	1338	205	112	966
	A.P. 16-20-0	400	2308	376	160	1614
	A.P. 16-20-0	800	2660	424	186	1752
Brome	Nil	0	892	156	90	742
	A.P. 16-20-0	400	1992	342	150	1446
	A.P. 16-20-0	800	2584	411	180	1722
Creeping red fescue	Nil	0	505	146	82	700
	A.P. 16-20-0	400	1685	322	142	1368
	A.P. 16-20-0	800	1940	408	172	1697

¹In 1959 and 1960, pastures that received an annual spring application of 100 pounds per acre of A.N. 33-0-0 from 1956 to 1958 were fertilized with 400 pounds per acre of A.P. 16-20-0; those that had received 200 of A.P. 16-20-0 were fertilized with 800 pounds.

USE IN RECLAIMING BURNED-OVER LAND

Studies on the establishment of cultivated grasses and legumes on burned-over bush lands have shown creeping red fescue to be suitable for reclaiming such areas (Table 8). The recommended pasture mixture is creeping red fescue at 3 pounds per acre, brome grass at 6 and alfalfa at 3. If seeded in early spring after the burn, it usually becomes established, reduces water and wind erosion, and converts an otherwise waste area into a valuable range.

Table 8.— Percentages of Ground Cover for Cultivated Forages Seeded in Burned-Over Bush Soil (Averages of Three Readings at Four Localities) in Northern Alberta and British Columbia

Species	1952 Stands 1 year old	1955 Stands 4 years old
Creeping red fescue	74.0	48.8
Brome grass	56.8	46.8
Kentucky blue grass	54.2	43.4
Timothy	41.0	17.6
Crested wheat grass	7.8	0.4
Sweet clover	42.0	32.2
Alfalfa	34.5	37.4
Alsike	28.6	39.0
Red Clover	9.5	7.0

USES IN LAWNS AND MISCELLANEOUS AREAS

Creeping red fescue withstands considerable wear and, besides being found in most lawn mixtures, is often used for farmyards, roadways, playgrounds and highway grades. It is especially suitable for regrassing disturbed areas around industrial sites. Seeding rates of 10 to 12 pounds per acre are suggested for these purposes. In the drier prairie regions it is not as satisfactory as crested wheat grass where supplemental watering cannot be provided, but in shaded lawns creeping red fescue has some merit.

A high-quality turf for lawns is obtained with a mixture of 3 pounds of creeping red fescue and 1 pound of Kentucky blue grass per 1,000 square feet. Established lawns benefit from an early-spring application of nitrogen. This can be provided by spreading ammonium nitrate (33-0-0) on the surface at 3 pounds per 1,000 square feet. To avoid burning, apply commercial fertilizers only when the turf is dry. Regular mowing of a creeping red fescue-blue grass lawn at a height of 1½ to 2 inches will maintain a good turf which will compete well with weeds. Cutting closer than 1½ inches will reduce the vigor of most lawn grasses.



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